Monthly Review

Federal Reserve Bank of Boston

A VERMONT TURKEY FLOCK (Courtesy of Vermont Department of Conservation and Development)

Broader Investment Channels for Life Insurance Companies

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One of the most significant attempts to expand investment outlets for life company funds was the authorization to invest directly in real estate. These investments have taken two main forms — housing projects and the ownership of business properties.

Following the lead set by Virginia in 1942, most states have amended their life insurance investment statutes to permit the investment up to five per cent of their total admitted assets in the purchase of business properties. In response to this action, most life companies have invested substantial sums in (a) land owned in fee under long-term ground lease where the value of the improvements constitutes adequate security and (b) properties under long-term net lease to corporations of acceptable financial standing.

Insurance companies have also continued to absorb "privately placed" securities in increasing quantities. This method of raising capital has grown in importance to American business and is the result of changed conditions in the capital markets which began in the 1930's.

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In recent years life insurance has accounted for as much as 25 per cent of the total saving flow and for many years has constituted a rising proportion of the total savings of individuals. As pointed out in the October 1948 issue of this *Review**, the building up of life company assets creates an investment problem of great magnitude and interacts on the capital markets in determining the types of securities through which capital can be raised most readily.

During the past twenty years, three factors have combined to intensify the investment problems of the life insurance companies. The first was the rapid rate of growth of their assets. Even the dark year of 1933 saw a small increase in total assets, and in the fifteen years following 1933 the total assets of all companies in the country increased by 165 per cent. Second, this increase in the supply of funds for investment was accompanied by a decline in the volume of private long-term debt; it was only in the postwar year 1947 that total outstanding corporate long-term debt and mortgages executed by individuals equaled the peak of 1929. Finally, during both decades substantial declines occurred in the level of interest rates.

These three factors combined to decrease the rate of return which life insurance companies received from their investments. Private obligations yielded less than formerly, and an increasing proportion of funds went into U. S. Government obligations, causing a further decline in average return owing to the lower yields on Governments as compared with private obligations.

This decline in yields ultimately resulted in a reduction in investment return assumed in fixing premium rates on new policies. It also resulted in an intensified search for investment outlets yielding higher returns without an undue sacrifice of safety of principal.

The most recent and one of the most significant attempts to expand the outlet for investments is found in the direct ownership of real estate. During the first half of 1949, life insurance companies made direct investments in real estate totaling $107 million. This included both housing developments and business properties, the former for rental to individual tenants and the latter generally for lease over long periods to established business concerns.

The negotiation of private purchases of securities from corporate borrowers, generally referred to as private placements or private deals, provided the second outlet. Recent data on holdings of these privately purchased securities are not available, but they were estimated as amounting to $6 billion at the end of 1948. This was about 11 per cent of total admitted assets at that time.

*"Institutional Investors Form Basic Industry in New England."

Until the early 1940's, state laws generally limited the ownership of real estate by life insurance companies to properties required for the conduct of business and those properties which had been acquired in settlement of debts. Property acquired in this latter fashion had to be disposed of within a stated period. Real estate was not considered an appropriate earning asset.

Consequently, modification of the insurance laws of many states was necessary before companies were able to acquire real estate for investment purposes. Amendments to the laws are of two general types: some specifically authorize investment in residential or business properties, or both, while others simply provide for the holding of a small percentage of total assets in forms not otherwise authorized.

In both instances, limits upon total holdings are generally imposed, and in some cases investments in single pieces of property are limited to a specified percentage of assets. In addition, many states have prohibited investment purchases of some types of real estate considered to carry substantial risk, such as farms, hotels, and amusement parks.

In New England, where necessary, the state laws have been amended to permit direct investment in real estate. It may be noted from the accompanying table that currently investment in business properties is permitted in all of the New England states; investment in housing projects is prohibited only in Vermont.

Residential Housing

The dollar amounts involved in housing projects are impressive. Since the beginning of 1947, life insurance companies have invested $144 million in rental housing, resulting in total holdings on June 30, 1949, of $275 million. New England companies have contributed substantially to this increase, more than doubling their holdings in 1948. They invested nearly an equal amount in the first half of 1949, bringing their total holdings to $18 million by the middle of the year. The huge projects in New York City have attracted nationwide attention and New Englanders are familiar with Hancock Village in Brookline, Massachusetts.

Generally speaking, insurance companies are interested in residential properties covering an extensive area and representing a substantial investment. These are long-term investments, and usually it is only through the ownership of an entire community-area that protection is assured against the decline of property values. There are exceptions, however, like college or university housing where the university protects the nearby properties from the danger of deterioration.

Operating residential properties is not entirely new to life insurance companies. In the past they have operated properties acquired in settlement of debts — pending a favorable market for their sale — and in some cases have reported a profitable operating record. In addition, their mortgage-lending activity has increased their familiarity with residential property operation and practice.

The life insurance companies manage their properties in much the same way as conventional operators. Rentals are used to meet the costs of management and maintenance, and the balance provides an income from the investment and ultimate return of the investment through amortization.

Many life insurance companies are interested in this type of investment because it gives promise of a favorable return on the funds invested. At present some companies have revised their plans for entering or widening their activities in this field because of the high level of construction costs and uncertainties as to whether the resulting property values can be maintained in the future. They look with favor upon the principle of such investments but feel that this is not an opportune time for making additional commitments.

Others appear doubtful of its merits, citing the fact that construction and management require specialized staffs and stating that an equity investment in a business with the risks of housing does not appeal to them. The smaller companies are handicapped by their relatively small resources. The investment required in a large project may exceed their total allowed real estate holdings, and in any case would represent an undue concentration of funds in one asset. The purchase of single units is frequently fraught with risks arising from possible deterioration of the neighborhood.

These difficulties notwithstanding, it appears that the future will bring additional investments of this kind. Direct ownership of properties offers certain advantages to the investor that tend to offset the disadvantages. As lenders on real estate, life insurance companies have frequently incurred the losses which developed in a period of depression; in their new position as owners, however, they will receive additional compensation for this risk through taking the gains in prosperous times. Furthermore, continuing control over their investment is an element of strength, enabling them better to protect the value of the property and to

SUMMARY OF STATUTORY PROVISIONS AFFECTING INVESTMENT IN REAL ESTATE BY LIFE INSURANCE COMPANIES DOMICILED IN NEW ENGLAND

Connecticut: Authorization to invest up to five per cent of total admitted assets in loans or investments not otherwise authorized.

Massachusetts: *Residential properties:* Authorization to invest in housing projects designed for 25 or more families, subject to limitation that total book value of real estate shall not exceed 20 per cent of assets.

Commercial and industrial properties: Authorization to invest in properties (other than those whose primary income is from agriculture, horticulture, or animal husbandry). Limitation of one per cent of assets in single tract, three per cent of assets in properties of this type, and 20 per cent of assets in real estate. Annual write-down of at least two per cent required.

New Hampshire: Similar to laws of Connecticut except that approval of insurance commissioner is required.

Rhode Island: Authorization to invest in housing projects and property for any other investment or income-producing purpose, subject to limitation that total book value of real estate shall not exceed 20 per cent of assets.

Vermont: *Residential properties:* Not authorized.

Commercial and industrial properties: Authorization to invest in properties (other than those used primarily for agricultural, horticultural, ranch, mining, recreational, amusement, club, or quarrying purposes) which are under lease to lessee meeting specified standards. Lease must be for 5-50 years. Property cost must be amortized during period of lease. Limitation of total real estate of this type to five per cent of total admitted assets.

Source: Correspondence with the insurance commissioners of the several states, July 1949.

set rental levels in accordance with their ideas as to long-run profitability.

Investment in business properties by life insurance companies has overshadowed their investment in housing developments, especially in the case of companies domiciled in New England. A more recent development than the ownership of housing projects, business property holdings have increased at a rapid pace.

Starting with a small investment in 1947, the life insurance companies of the United States added $122 million to their holdings in that year, followed by an additional $175 million in 1948 and $73 million in the first half of 1949, bringing their total at mid-1949 to $353 million. New England companies more than doubled their holdings from the end of 1947 to mid-1949, and held business properties valued at $76 million on June 30, 1949.

The record of purchases by New England life insurance companies indicates their preference for commercial properties over those used by manufacturing industries. The majority of the purchases made thus far have consisted of department store buildings and properties occupied by grocery or assorted merchandise chain outlets. The properties are widely distributed throughout the United States.

There is one characteristic which is common to virtually all of these properties — they are under lease to a strong tenant. Indeed, most insurance companies state that they regard the credit worthiness of the tenant and the terms of his lease as the primary considerations in evaluating the purchase of commercial property. To these companies the underlying value of the property serves very much the same function as it would in the case of a mortgage loan, the provision of surety for the performance of contract by the other party. Other life companies place more emphasis upon the intrinsic value of the property, although they do not overlook the desirability of the prospective tenant.

With few exceptions, the properties are purchased from the tenant or are purchased and improved on the basis of a commitment from a prospective tenant. Purchases from tenants include the sale-lease transaction which has received so much attention in recent years.

Sale and Lease-Back Procedure

In basic outline, the sale and lease-back is simple in form, although its ramifications may become quite complex. A business firm requiring additional working capital sells some or all of its land and buildings to an insurance company, and simultaneously enters into a lease agreement covering a long period of time — 20 to 30 years as a rule. The lease may contain options for renewals for periods covering an equally long period, almost invariably at a reduced rental. It less frequently contains an option to repurchase the property at a price related to the value at which it is carried on the books of the owner.

The sale and lease-back is frequently used by a firm as a method of securing additional facilities in order to expand operations. In such cases, the firm may construct new buildings and then enter into a sale-lease agreement. Alternatively, on the strength of the firm's commitment to rent the property upon completion of buildings, an insurance company may undertake the construction in accordance with the prospective tenant's plans. In either case, the result is the same; the business firm secures additional quarters and the insurance company acquires property which is leased for a long term.

The properties involved range from multi-million dollar department store buildings to the small neighborhood units of food chains. The latter are generally handled in groups, so that even in these cases the amounts involved are substantial. Safeway, Inc., a food chain, was one of the first concerns to use this device. It sold many of its stores to investors even before the insurance companies entered this field.

The prices at which sales are made are generally book or appraisal values in the case of existing properties and cost in the case of new properties. Leases usually specify a net rental (the tenant to pay taxes, insurance, and maintenance costs) sufficient to provide an attractive rate of return upon this outlay, and at the same time to amortize it over the period of the initial lease. This write-down of the investment provides the basis for the reduced rental specified for renewal periods; since the original investment will have been returned by then, further receipts will be against an investment carried at a nominal amount. Typical first-quality purchases yield between three and four per cent, depending upon the length of the initial lease.

Advantages of Lease Arrangements

The seller of the property receives additional working capital, the use of the building, and at the same time secures income tax benefits through renting rather than owning real estate. This practice may be described as an acceleration of depreciation or the extension of the depreciation principle to include land. The advantages are clear cut when the sale-lease transaction is compared with ownership on the assumption that the same amount of funds is obtained through a loan which calls for annual payments of interest and principal.

Under the sale-lease arrangement, payments of rent are assumed to be deductible as business expenses. Thus the full amount of the occupancy costs are taken as an expense before taxes. A similar payment in the case of a loan consists of two elements, interest and repayment of principal; only the former is a deductible item. If the firm owned its real estate, it could take an additional deduction by depreciating its buildings — but not the land. These additional deductions would not, however, amount to as much over the period of the loan as would the repayment of the principal during that period. This follows from the fact that they would be based upon the charge-off of a smaller amount over a longer period of time, because the leases are invariably written for a period which is less than the expected economic life of the buildings.

There are offsets to these advantages, however. First and foremost, while the vendor-tenant may have the use of the buildings over a long period of time, he has lost ownership and must pay rent to continue his occupancy. Second, the charge-offs from income before taxes — particularly depreciation — are compressed into a shorter period of years and thus bear heavily on income during the initial period of the lease. Judging by the number of transactions, however, the advantages outweigh the disadvantages.

Most life insurance companies look upon the sale-lease transaction as a credit operation, which represents an extension of funds to the vendor-tenant. It may be described as a 100 per cent loan against real estate, in which the credit standing of the vendor-lessee is given primary attention while the real estate simply constitutes satisfactory collateral. Transactions bear out this description. When, for example, leases contain provisions for renewal options extending over a long period of years at low rentals and for repurchase options at book values plus a small premium, it would seem that the nominal owner of the property (the insurance company) has in fact surrendered all control over it.

Divergent Views on Sale-Lease Transactions

This policy is not universally followed, however. Some life insurance companies state that they want real estate instead of annuities. They believe that control over the property should be retained so that the companies can benefit from increases of value. Leases executed by these companies may contain renewal options, but they specify "realistic" rents, and they rarely give repurchase options.

One company following this philosophy has purchased a number of selected office buildings. These properties are leased to operators for rental to multiple tenants, but operations are kept closely under the supervision of the owner. The operator thus stands between the large owner and the numerous small tenants, handles the details of operation and maintenance, and at the same time provides some financial cushion for the insurance company in the event of operational setbacks.

On either a "real estate" or an "annuity" basis, however, the ownership of business properties provides returns that are attractive to life insurance companies. In some cases yields show substantial differentials over the returns available on securities of the tenant companies, and in addition promise a continuing series of returns after the investment has been paid out. There has recently been evidence of some tightening in the terms of leases and the requirement of higher rates of return to insurance companies as lessors. This probably reflects the fact that some companies are approaching the limits authorized for this type of investment and possibly indicates increased competition among would-be vendor-lessees for insurance company funds.

Direct Placements

New England life insurance companies purchased directly from the issuers nearly 36 per cent of the $1,162 million of securities which they acquired in 1948. The proportion was much higher in the case of some companies and of some types of securities. One company, for example, made 72 per cent of its acquisitions in this manner, while five companies reported no transactions of this type. Private purchases were of greatest importance in the acquisition of industrial bonds; more than 85 per cent of the dollar volume was purchased directly from the issuer. In the public utility field, direct deals accounted for one third of total purchases. No direct deals were reported in connection with railroad securities and only a few isolated deals in municipal securities.

Privately placed securities have long played a part in the financing of corporations, but it is only in recent years that they have assumed an important role. There have been only two years in the period since 1937 in which they have amounted to less than one fourth of the total new issues of corporations.

The increased use of the private-placement process is due to two underlying causes: the decline in importance of the individual investor and concurrent rise of institutional investors, and the decline in the supply of corporate securities relative to the demand. Insurance companies found it difficult to obtain enough corporate securities to meet their increasing needs. Thus, in order to be able to assure themselves of suitably sized blocks of new securities, many insurance companies took aggressive steps to arrange for the direct placement of entire issues privately.

Other reasons have been cited for the growing popularity of private placements. Probably the one most frequently encountered is that such issues do not require registration with the Securities and Exchange Commission. The importance of the registration question is debatable. The direct expense involved in registration is a very small percentage of the money raised, although the cost of preparing and submitting the initial registration statement may well be substantial. At the same time, the statements and reports required by lenders in private-placement financing are also exhaustive, so that the net saving in this direction may be small. Another probable important aspect of registration is the businessman's dislike of submitting detailed reports to public agencies and of subjecting his plans to the administrative minutiae believed to be involved.

The initiative in private placements now seems to rest with the borrowers. New England insurance companies report little solicitation of such deals on their part, stating that a large proportion of their prospective borrowers come to them through brokers. This proportion is variously estimated and ranges from 60 to 70 per cent. In practically all other cases, borrowers approach the companies directly.

Advantages of Private Placements

There are substantial advantages to the borrowers in the private placement of their securities. A life insurance industry spokesman recently cited four such advantages: 1. Ease of direct negotiations between borrower and lender. 2. Speed with which binding agreements may be made. 3. Flexibility of terms. 4. Savings in expense.

The advantages to the borrower of direct negotiation include the establishment of a personal relationship with the lender which may subsequently result in greater ease in obtaining additional financing. In some instances the initial transaction has been followed by other issues, which have been more readily placed because of the negotiations in connection with the first issue. The lender was well acquainted with the affairs of the borrower and was in a position to make a rapid decision as to the purchase of new securities, thus eliminating much of the expense and work of a new offering. Occasionally this willingness to purchase additional securities has been formalized in a definite commitment, for which a commitment fee has been charged.

The time element is of importance in securing funds, and a substantial advantage is claimed for direct nego-

tiation over the time-consuming process of registration and public marketing. Registration may necessitate the preparation of interim operating statements and balance sheets, resulting in additional delay. While the need for funds may be met temporarily through bank loans, the delay in marketing the securities may have serious consequences in the event of a change in market conditions. Reduction of the time interval between the decision to issue securities and their actual sale may thus be of substantial importance.

Flexibility of terms is a natural outgrowth of the direct relationship of borrower and lender. Terms may be designed to fit the case in hand and, of even greater importance, they may be altered more readily than the bond indenture in a public offering. There are obvious advantages to a borrower in dealing with one or a small number of sophisticated holders if a future situation requires modification of the terms of the issue. Relaxation of restrictive provisions may be more readily permitted by investors having full understanding of the facts of the situation coupled with the experience acquired in meeting similar situations in the past.

The savings in expenses are principally related to the elimination of the costs of underwriting and distribution. A public issue requires the services of an investment banker to advise in the preparation of the issue, to underwrite its sale, and to sell it. The private deal removes the necessity for the second and third of these functions, and expense of this type may be reduced to a small fee for advice and for finding a prospective buyer of the issue. Subsequent dealings between the borrower and a life insurance company are sometimes conducted without recourse to investment bankers and hence with no cost for their services.

Illustrative of the cost factor is a case cited by one of the New England life companies. A small utility company placed a private issue of nearly $500,000 with an insurance company at a total out-of-pocket cost (exclusive of its own attorney's fees) of $1,841; a subsequent issue of around $100,000 had attendant expenses of $550. This compares with a distribution cost of 6.1 per cent on publicly sold bond issues of less than $1,000,000 during the year ended June 30, 1948, as reported to the Securities and Exchange Commission. While the costs of these two private issues might be considered atypical, it is nevertheless true that the small cost of private placement is an important consideration in many of these transactions.

Some advocates of private placements have claimed an even broader merit for them — the financing of small firms which would normally not have access to the market. Issues of small size are expensive to float and frequently are sold only with great difficulty. Investors who are not familiar with the affairs of small issuers will not buy their securities without considerable investigation and are reluctant to make this investigation merely on the possibility of securing a part of a new issue. Possible purchase of the entire issue on a negotiated basis, however, does make investigation worth while. It is believed that some issues which were too small for public marketing have been privately placed, thus enabling the borrowers to tap sources of funds which would otherwise not have been available to them. There is a difference of opinion among life insurance officials as to the importance of this factor.

In some instances banks and life insurance companies have joined in buying an issue offered for private sale. Banks, by taking the earlier maturities — up to, say, five years — secure the equivalent of a term-loan placement, while insurance companies obtain intermediate- and long-term securities suitable to their needs. Coordination may be thus secured in integrating the long- and short-term credit requirements of borrowers.

The strong interest of life insurance companies in private issues is traceable to two interrelated advantages of such issues. A better return is generally obtained from private issues than from market issues of the same credit rating. The companies also feel that, through their efforts in negotiating the terms, they can secure advantageous provisions in the indentures of debt obligations which offer greater protection. The differential rate is generally described as being about one fourth of one per cent above the rate on comparable market issues. It is made possible, apparently, because of the savings of flotation costs to the borrower and possibly to some extent because of intangible considerations, such as the avoidance of registration and the establishment of a continuing relationship with the creditor. In any case, it is a factor of considerable importance to the life insurance companies in weighing private issues against publicly offered securities.

Protective Features

The provisions of indentures in privately placed securities are considered to be more favorable to the lender than the indentures in the characteristic issue offered publicly. They generally include limitations upon additional debt and upon the sale of fixed assets, the establishment of a minimum level for working capital, and restriction of amounts to be paid in salaries and dividends; in addition, provision is frequently made for sinking fund payments during the life of the loan.

In issues marketed through investment bankers, indentures are drawn up with the advice of the investment banker and represent an estimate of what investors in the market will require in order that the issue be acceptable to them. Life insurance company investment officers point out that, by making the indenture provisions a matter of negotiation, they are frequently able to strengthen their position without detriment to the issuer through insisting upon provisions which are acceptable to the borrower but have not generally been included in the past.

The requirement of a minimum level of working capital has received primary emphasis as a provision in private-placement indentures. There is considerable opinion that the use of minimum working capital as a default provision will enable the creditor to protect his interests in an effective fashion. Technical default may occur sometime before the situation has deteriorated beyond the possibility of recovery. Thus the insurance company can collect the loan or, under threat of doing so, force the debtor to take remedial action.

Provisions specifying sinking fund payments by the debtor have attained almost equal importance. This feature is found in the indentures underlying most of the privately placed securities of industrial concerns and, to a lesser extent, in the case of public utility issues.

While public utility issues frequently call for larger or "balloon" payments at the final maturity of the issue, the issues of industrial concerns almost invariably provide for a full payout by maturity with the final payment no greater than those of intervening years. The customary advantages of such provisions are cited by their advocates, namely, that they strengthen the loan by steadily reducing the amount relative to the equity underlying it and that they eliminate the risk of the borrower's being unable to refinance at the maturity of the current obligation.

In addition to the advantages secured in the terms of the transaction, some life insurance companies see further gains from face-to-face dealings with issuers of securities. Personal negotiations result in the formation of opinions as to the capabilities of management personnel and open channels for acquiring similar information in future years. Provision may be made for submitting balance sheets and operating statements frequently. While published statements and ratings may not be available on the smaller companies, this is believed to be more than offset by the information obtained directly. Opinion differs as to the volume of analytical work connected with private purchases as compared with public issues, but the majority view is that the private deals require more effort.

Private placements are exempt from registration requirements but this is said not to affect their future marketability. There is no prohibition upon their public sale by the initial purchaser, provided it can be shown that they were originally purchased as an investment and not for the purpose of underwriting the issue. While the lack of registration and of public trading may eliminate the possibility of a broad market for the sale of privately purchased securities, life insurance company investment officers point to the fact that there is no broad market for any securities which they hold, including issues registered with the Securities and Exchange Commission. The decision to sell an issue in such large blocks as are commonly held by insurance companies necessitates a similar decision to buy on the part of another institutional investor; sales in the market could be made only at a substantial sacrifice of values. Sales of private-placement securities have been made between companies, although apparently not in any great volume.

Conclusions

The effects of private placements and direct ownership of real estate upon the asset structure of life insurance companies have taken two forms: the introduction of a new type of asset and a modification of the forms of assets held previously. Entry into the field of equity operation of real estate — in housing developments and in business real estate — where effective control is retained, represents a new departure, while use of the lease as a credit instrument and the negotiation of private-placement terms have led to significant modifications of the nature of debt investments.

From an earnings standpoint, both developments appear to be partial answers to the problem of low interest rates. Further, it appears that these gains have been made without undue loss of safety of principal.

Investment in assets with relatively poor marketability may raise doubts as to possible losses in the event of forced liquidation at some future date. Yet, as has been pointed out, this question may just as well be raised with regard to holdings of substantial blocks of marketable securities with the exception of those issued by the United States Government. Further, it seems doubtful that life companies will be faced with conditions requiring the liquidation of their less shiftable assets. On the basis of past experience, present holdings of Government obligations seem adequate to meet any sudden drains upon company resources.

These developments, in combination with the assumption of a more active investment role by the companies, have modified the relation of the life insurance companies to the rest of the economy. Since 1906 life companies have played the part of the passive creditor except for their relatively small investments in preferred stocks and action in cases of bond defaults.

Real estate operations have placed life companies in the role of active entrepreneurs in a field other than that of life insurance. It should be borne in mind that participation in this field is limited to relatively small amounts; generous estimates place the maximum at $2 billion. Regardless of the size of the operations, however, there is a very real change of role. Whereas life insurance funds formerly went into real estate (other than for company use) only in the form of loans, they now seek investment as equity funds with a shift of the powers and responsibilities of management to the life companies. The opinion has been advanced that this change will, in addition to providing additional equity funds for real estate operations, have the effect of lending greater stability to the real estate market. This view assumes that the life companies, as long-term investors, will be less affected by short-term fluctuations in market values and hence will not contribute to these movements.

In the field of private placements, the life insurance companies have acquired substantial *potential* influence in the making of business decisions. Here again the tendency has been toward a more active role. Creditors were traditionally passive in the operation of businesses so long as there was no default on payments of interest or principal. The default concept was then broadened to include actions by debtors in violation of conditions imposed by indentures. The recent broadening of indenture terms has brought the lender closer to a position of control in the affairs of the borrower. As stated in connection with provisions relating to minimum working capital, requirements are being set high so that the lender will have a lever in the form of technical default to ensure remedial action by the borrower before his affairs are beyond recovery.

Viewed in broader aspects, both of these new investment devices are causes for optimism. To the extent that they have broadened the channels for the investment of life insurance funds, they are reducing the ill effects commonly attributed to the increasing institutionalization of savings. For the long-run maintenance of high levels of economic activity, it is vitally necessary that savings be returned to the income stream through the broadest possible channels of investment. In an attempt to meet their own earnings needs, life insurance companies have apparently developed devices that will in part fulfill this broader function.

Monthly Review
FEDERAL RESERVE BANK OF BOSTON

WOOD WASTE:

New Industrial Frontier for New England

ACCORDING to an old legend, some early Americans saw an Indian rubbing a crowbar back and forth across a rock. They asked him what he was doing and he said he was making a needle. Making lumber, plywood, furniture, and other wood products out of standing trees is not as wasteful of either time or material as that old-time Indian's method, and is less so than it once was, but the quantity of sound wood that still goes the way of the iron filings from that mythical crowbar is very great. An additional large amount yields only a relatively low return through use as fuel.

This matter of wood waste was mentioned briefly in an article in the *Monthly Review* for August 1948.[1] That article said that much of the so-called wastage has in the past consisted largely of discarding material for which an economic use had not developed or which could not pay its way to market.

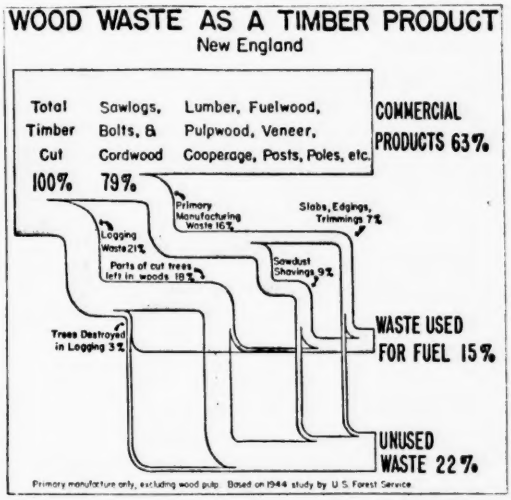
A chart that appeared in the *Monthly Review* for August 1948 is reproduced here. It shows that of 631 million cubic feet of wood cut for commodity use in New England in 1944 a little less than two thirds was made into primary commercial items. Somewhat less than half of the rest was used as fuel (not to be confused with cordwood) in the wood-fabricating plants, but 22 per cent found no economic use whatsoever.

Until entirely new mechanical methods are developed, woodworking will produce sawdust, shavings, and chips. Since logs are round and lumber must have a rectangular cross section, the production of slabs and edgings is inevitable. They are presently used mainly for fuel if at all. The process of tanning leather has used tannin from some types of bark for many years but the utilization of other types of bark and its products has only begun. This article will not discuss wastes resulting from wood pulp manufacture.

If economic uses can be found for the waste from logging and other operations in the woods, sawmills, and woodworking plants, producers can increase their profits and help to conserve our forests. Waste-disposal cost is an important operating expense in many sawmills, planing mills, and the plants that convert lumber into furniture and other fabricated wood products.

The desirability of economic uses of wood waste has stimulated active investigation to find out what products might be made out of these unused materials and how they might find profitable market outlets. Although research has accomplished much, large opportunities still exist for expansion of wood waste utilization.

It has, for example, been estimated that sawmills and other primary wood-using industries in New England produced 1,275,000 tons of solid wood-waste material in 1944.[2] Of this, 660,000 tons is in the form of slabs,


WOOD WASTE AS A TIMBER PRODUCT
New England
Total Timber Cut
100%
Sawlogs, Bolts, & Cordwood
79%
Lumber, Fuelwood, Pulpwood, Veneer, Cooperage, Posts, Poles, etc.
COMMERCIAL PRODUCTS 63%
Primary Manufacturing Waste 16%
Slabs, Edgings, Trimmings 7%
Logging Waste 21%
Parts of cut trees left in woods 18%
Sawdust Shavings 9%
Trees Destroyed in Logging 3%
WASTE USED FOR FUEL 15%
UNUSED WASTE 22%
Primary manufacture only, excluding wood pulp. Based on 1944 study by U.S. Forest Service.

edgings, trimmings, and other coarse-sized material and 615,000 tons consists of sawdust, shavings, chips, and other fine-sized material. It is estimated that 575,000 tons or 87 per cent of the coarse-sized material and 365,000 tons or 60 per cent of the fine-sized material is used as fuel by the producing plants. Direct use for fuel thus accounts for 940,000 tons per year, or 74 per cent of all the manufacturing wood waste in New England, according to this estimate.

These figures cover only the primary wood-using industries — those making lumber, veneer, cooperage, shingles, railroad crossties, and similar unreprocessed products. They do not include the manufacture of wood furniture, boxes, tool handles, bobbins, and the multitude of other turned and shaped products which calls for making more sawdust, shavings, chips, trimmings, and so-called waste in other forms.

The U. S. Forest Service also estimated that logging operations and the cutting of pulpwood, fuelwood, posts, poles, and other direct products of the forest left nearly 2,000,000 tons of unused material in the woods. Of this, only about 255,000 tons or 13 per cent was used as fuel. The balance is reported as entirely unused.

According to the best estimates available, New England's forested area consists in part of 14 million acres of timber of pole and sapling size. A large part of this area needs thinning to provide proper growing space for vigorous, well-formed trees. Improvement cuttings ought also to be made to remove the inferior and defective trees that have no future and are in the way of the

[1] "Nature's Self-Stocking Warehouse — *The Forest Supplies Basic Raw Materials for New England's Diversified Wood-Using Industry.*"

[2] U. S. Forest Service, *Wood Waste in the United States.* Reappraisal Report No. 4, 1947.

trees that have potential commercial value.

Awareness of the great quantities of good wood material that must be taken out of the woods unprofitably, and of the additional quantities that ought to be coming out, makes us realize that we need to revise our thinking about ways of using wood. The logical point of attack on this new wood-use problem is the material being discarded by the manufacturers of lumber and other wood products. This is the most immediately available material, closest to the potential consumers.

Early in 1949, the Federal Reserve Bank of Boston made a research grant to the Northeastern Wood Utilization Council for the purpose of conducting a survey of manufacturing wood waste in New England. Much of this article is drawn from the Council's report.[3]

This survey made no attempt to determine the amounts, types, and conditions of wood waste in all of the more than 3,000 sawmills and other primary and secondary wood-using plants in the region. It was confined to areas where concentration of activity indicates the probability of a sustained quantity of waste material, within a 15-mile radius, sufficient to justify consideration of a utilization plant of some sort. Thirty-nine such areas were found. Their centers are shown on an accompanying map. There are 12 in Maine, 10 in New Hampshire, 11 in Vermont, 5 in Massachusetts, 1 in Connecticut, and none in Rhode Island. The survey covered permanently located sawmills, planing mills, veneer plants, furniture factories, and other industries which develop waste by mechanical means.

Data Collected by Interviews

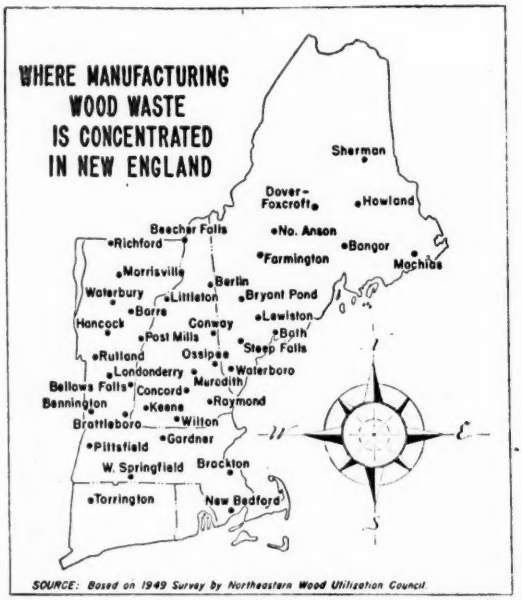
The survey consisted entirely of personal interviews. Data were obtained from 245 individual plants distributed among the states as follows: Maine, 60; New Hampshire, 50; Vermont, 68; Massachusetts, 59; Rhode Island, 2; and Connecticut, 6. All but 23 of these sources of wood waste are located within 15 miles of at least one of the 39 centers shown on the map.

The 245 plants covered by the survey report that they produce, annually, 702,045 tons of wood waste. Of this, the producers report that they sell or give away 196,305 tons (28 per cent). They state that they burn 337,915 tons (48 per cent) as power-producing fuel in their plants. The remaining quantity, 167,825 tons (24 per cent), is not used for any purpose, the plant operators say. More than 350,000 tons per year is presumably available for further manufacture, without the necessity of change in fuel uses, in the 245 plants covered.

The "not used at all" category presents a disposal problem involving expense to the operating plants. There is also a question whether the present uses of wood waste, whether sold, given away, or utilized as fuel by the producing plants, are always the most profitable possible uses. The results of recent research and changes in numerous aspects of the economic pattern of wood utilization indicate the desirability of giving serious attention to this question.

An accompanying table shows how the wood waste produced in the 39 concentration areas is distributed among the states. It also shows the breakdown between coarse-sized and fine-sized material and the disposition

[3] Heermance, E. L., and Sowinski, E. S., *Wood Waste Utilization*. Northeastern Wood Utilization Council, unpublished mss., New Haven, Connecticut, 1949.



being made of each type. As would be expected, Maine produces the greatest quantity and Connecticut the smallest. It was not possible to locate a concentration area in Rhode Island. The largest accumulation within a 15-mile radius centers in Bryant Pond, Maine, with 105,000 tons annually. The other areas vary between 5,000 and 45,000 tons. Their average is 14,650 tons. Of the more than 660,000 tons of reported average annual wood-waste production in the concentration areas, about half is coarse-sized and half is fine-sized material. The amount of currently unused coarse material is nearly twice as great as that of the unused fine material.

Further detail cannot be supplied here but is available at the Research Department of the Federal Reserve Bank of Boston. Data on single plants cannot be furnished because the respondents were promised that individual data would be kept confidential. General information will be supplied, however, on request, including names and addresses of producing plants and, by areas, the species and form of the waste material and the amounts that are green, air-dried, or kiln-dried.

Why is all this attention being paid to this so-called waste material and what can be done with it anyway? So much interest has been aroused in discovering profitable and economic uses for it that most of the research and engineering agencies in the country have done some project work on one phase or another of the problem. Much work has also been done overseas, particularly in Europe. Much of this research is based upon relatively recent developments in chemistry and, particularly, in the field of synthetic resins.

Nevertheless, an obvious and commonly used method of increasing the use of formerly wasted material lies entirely within the mechanical field. Improvements in machines, widened use of conveyors, and other forms of mechanization make the recovery of small trimmed pieces increasingly more economic in spite of generally increasing labor costs. Tool handles, chair spindles,

stepladder steps, toys, and small woodenware items are useful things that can be made out of this material.

Increasing quantities of slabs and edgings are being shredded by "defibrators" into a rather coarse fiber used as a filler in rolled roofing, building felts, and composition shingles to replace the rags which were formerly extensively used for this purpose. Defibrated material is also used for making insulating boards and other types of building boards, use of which has grown rapidly during the past 15 years. Wood flour — which is used as a plastic extender, fur cleaner, filler for floor coverings like linoleum, and for other purposes — is made from sawdust by mechanical methods.

Wood chips are receiving attention as potential soil rebuilding material, particularly if economic methods of speeding up their rate of decay can be discovered. Small portable wood chippers are being perfected which may have an important influence on this type of wood-waste use. In parts of New England the demand for sawdust and shavings by farmers exceeds the supply. Used for animal bedding, they absorb nitrogen from droppings and urine and become valuable fertilizer extenders, particularly if lime and superphosphate are added. Mixtures of sawdust and shavings with cement have been found to be good building and flooring materials, superior for some purposes to conventional concrete.

Chemical methods of wood waste utilization now practiced commercially, in laboratories, or in pilot plants include wood distillation to produce charcoal, acetic acid, acetone, and methanol; wood hydrolysis, producing principally sugar from which ethyl alcohol and other chemicals can be derived by fermentation; hydrogenation to produce cyclic alcohols, phenolics, and neutral oils; tannin recovery from bark; activated carbon production; and conversion into yeast and fungus protein for animal and poultry feed. This last process has so far been used only on sulphite pulp liquor. Wood distillation was once an important industry but has waned recently because of the growth of competing industries making the same products more cheaply, often as by-products, from other raw materials. Production costs of some of the other chemically produced wood products are still undetermined.

Other new uses of wood waste under consideration include an improved utilization as domestic fuel, particularly for heating; the making of producer gas; and the manufacture of various types of wallboards. Research has developed high-efficiency wood-burning stoves and furnaces which operate on the distillation principle and have thermostatic controls. A machine recently put on the market makes small stoking briquettes out of sawdust and shavings. Recent research has greatly widened the knowledge of how to make insulating board, hardboard, and other types of wallboard from wood waste. The promising commercial prospects for these boards provided the main incentive of our survey of wood waste in New England.

Wallboard Industry Growing

Wallboards are of two main types. One type is held together by the interlacing of the wood fibers or only by their own cohesion, as a sheet of paper is held together. The common insulating boards and some types of hardboards are examples. In the other type, the bonding agent is a resin adhesive. Both molded and flat-pressed items are made by this process. Molded items include tool and tap and die boxes, trays, window sash, and corrugated panel cores. Flat-pressed items serve as exterior or interior sheathing and for other purposes.

At a recent conference on wallboards, Joshua A. Nickerson, Chairman of the Building Materials Consulting Committee of the Northeastern Retail Lumbermens Association, said that the perfect wallboard will have a pleasing appearance, will be easy to handle, and will have relatively low combustibility. It will also be resistant to moisture and decay, easy to decorate, reasonable in price and, most important of all, capable of holding nails as wood boards and plywood do.

This perfect board has probably not been invented, although some boards made here or in Europe closely resemble it. Some manufacturers claim to have achieved it. Whether or not this is true, the manufacture of wallboards is growing phenomenally. This growth is taking place, in part, in New England. Our survey shows that New England's established wood-using industries currently produce enough unused material to provide for much greater growth of wallboard production. There are other favorable factors in New England, such as an ample supply of high-quality labor and convenient sources of supply of other needed materials, particularly the synthetic resins.

The potential yield from thinnings and improvement cuttings in the young growing forests can add greatly to the raw wood supply for wallboard, as can recovery of material now being left in the woods by logging operations. For wallboard any species of wood can be used, bark need not be removed, and relatively low-quality logs and bolts are acceptable. Research and aggressive promotion can make wallboard manufacture a valuable addition to New England's industrial economy.

MANUFACTURING WOOD WASTE IN NEW ENGLAND (In 39 Concentration Areas)
Tons — Oven Dry Weight

State	Coarse				Fine				Total			
	Sold	Burned	Unused	Total	Sold	Burned	Unused	Total	Sold	Burned	Unused	Total
Maine	32,870	42,340	56,090	131,300	27,760	74,500	31,460	133,720	60,630	116,840	87,550	265,020
New Hampshire	18,860	22,220	19,570	60,650	25,060	32,700	14,410	72,170	43,920	54,920	33,980	132,820
Vermont	33,120	40,530	17,350	91,000	16,960	61,150	9,890	88,000	50,080	101,680	27,240	179,000
Massachusetts	9,490	18,700	14,545	42,735	16,765	18,070	1,150	35,985	26,255	36,770	15,695	78,720
Connecticut	950	1,560	520	3,030	1,750	550	360	2,660	2,700	2,110	880	5,690
Total for all New England	95,290	125,350	108,075	328,715	88,295	186,970	57,270	332,535	183,585	312,320	165,345	661,250

Source: Northeastern Wood Utilization Council.

The Changing Pattern of Spending and Saving

INDIVIDUALS and families have freedom of choice to decide if they will accumulate reserves, purchase goods and services outright from current income or reserves, or agree to pay for these goods or services on terms mutually agreeable to them and the sellers. Their final decisions will depend on the prices and terms of sale of goods and services, the level of their incomes, and their prospects for the future.

The piecing together of available data on saving and spending helps us to determine how people are choosing to use their money. Because they have chosen to put their savings into safer forms like life insurance and savings bank deposits, we are faced with the question of how we can bridge the gap between savings held by institutional investors and the financing needs of new enterprise. In this *Monthly Review* we examine the broader investment channels for life insurance funds. Similarly, because consumers about a year ago became more reluctant to spend, we examined the importance of product selection and aggressive merchandising for manufacturing success in our *Review* for July 1949.

Consumers are discriminating. Their decisions to purchase products for replacement or original use direct the flow of both consumer expenditures and savings.

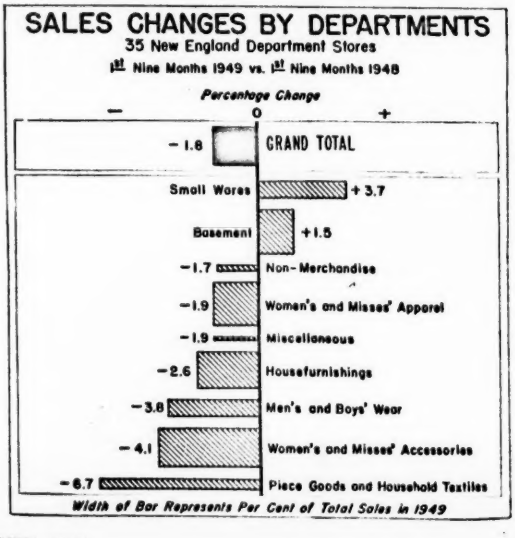
Consumer expenditures in New England during the post-war period to the fall of 1948 flowed strongly to durable consumer goods such as automobiles, furniture, and major household appliances. Although purchases of automobiles continued at a rapid rate into 1949, other consumer durable goods encountered greater price resistance and higher credit hurdles. Consequently, sales of some durable goods in New England decreased by 35 to 50 per cent compared with those a year ago. Women's apparel sales, however, picked up momentum in the second half of 1948 as the styling and pricing policies of cutters, jobbers, and retailers captured consumer acceptance. This momentum was sustained by promotional techniques through the first six months of 1949 when sales of these goods in New England department stores were 2.9 per cent greater than in the corresponding period of 1948, despite lower prices.

A comparative turnabout in consumer expenditures began during the third quarter of 1949 when lower prices of refrigerators, washing machines, vacuum cleaners, and other major household appliances became effective. Household appliance manufacturers and dealers had taken a leaf from the book of apparel merchandisers. Buyers also reacted favorably to easier credit terms and assumed new commitments to pay lower instalments from their future income. In August 1949, sales of furniture and bedding in New England department stores rose five per cent ahead of those a year ago, while radio, phonograph, and television sales rose by 143 per cent. Major household appliance sales in August still lagged behind those last year by about four per cent but in September jumped ahead of the level last year by about nine per cent. This spurt, with other support, brought September sales of housefurnishings in New England department stores to a level about 11 per cent above those for September 1948, but, on the other end of the teeter-totter, sales of women's apparel dropped about 14 per cent.

Total retail sales in New England for the first eight months of 1949 were only about one to two per cent below those for the same period in 1948, according to Department of Commerce reports. Even though sales at most types of independent retail stores had declined in 1949 compared with 1948, the performance of the automotive group, aided by the comparative stability in the general merchandise group, held total retail sales close to those for last year.

The response of consumers to lower prices and the higher quality of selected products has increased unit sales in New England department stores. Transactions in New England department stores for the first nine months of 1949 exceeded those in the same period during 1948 by 2.7 per cent.

As lower prices extend their influence to more products, the basement department will probably lose some of its comparative attraction for buyers. In September 1949, sales in the basement department of New England department stores were five per cent below those for September 1948. Because of this decline, the year-to-year sales performance (minus 4.9 per cent) in September of those stores which report departmental sales approached closer to the sales performance (minus 5.4 per cent) of all New England department stores — in which the basement store department is relatively less important. This drawing together of the sales performance of



department stores in New England went along hand in hand with the closer conformity of year-to-year New England department store sales with those in the country during the third quarter of 1949.

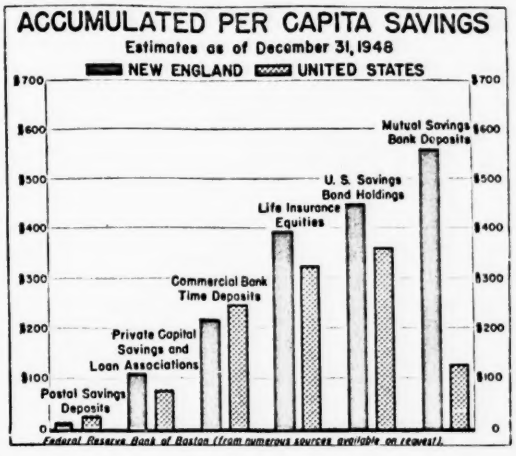
Individuals are still saving, on the average. After personal tax payments and consumption expenditures, they still have something left from current income to lay aside for investment or for future call. This means from an accounting viewpoint that, disregarding the influences of gifts and capital gains and losses, they have experienced an increase in their collective net worth — in their assets minus their liabilities. (Their assets include cash, deposits, securities, insurance and pension reserves, residential real property, investment in noncorporate business enterprises, and farm investments. Their liabilities include personal indebtedness as evidenced by mortgages, consumer credit loans, brokers' loans, and loans for noncorporate business and farm operations.)

In the prewar years personal saving in the United States, defined as an addition to net assets of individuals, never exceeded $5 billion per year. The impact of the war, which greatly expanded incomes and resulted in a scarcity of goods, shot personal saving up to a peak of $35 billion in 1944. It dropped rapidly during 1945 and 1946 to an annual rate of $0.7 billion in the second quarter of 1947. Since then it has again risen to an annual rate of about $15 billion.

Where did this saving go? During and immediately after the war it was channeled almost entirely into pocket cash, bank deposits, savings bonds, and the reduction of personal indebtedness. There was little opportunity for an expansion in direct investment in physical property. The exchange of real estate among individuals merely gave the seller an opportunity to build up his cash position. But as war veterans intent upon establishing or re-establishing a livelihood returned to civilian life, and as industry became reconverted to the production of peacetime goods and services, the form of saving underwent a decided change. Large sums were directed towards residential construction, farm investment, and the plant, equipment, and inventory needs of noncorporate business enterprises. Little was left to be added to cash or deposit reserves; in fact, earlier accumulations were drawn down in many cases. Savings bond redemptions closely balanced new subscriptions. Personal indebtedness increased.

A decline in new consumer loans and residential mortgage recordings in early 1949 reflected caution against an imprudent accumulation of personal indebtedness. With that short-lived exception, current trends in saving seem to follow the 1948 pattern of extensive investment in physical property, little change in cash deposits and savings bond reserves, and some dissaving through increases in indebtedness. Throughout the period, payments into insurance reserves and into savings and loan associations and cooperative banks, being largely of a contractual nature, have shown a steady and healthy growth.

The foregoing facts reflect the aggregate saving experience of individuals. Individual experiences, of course, vary considerably, but there is good evidence which indicates that this aggregate experience is typical for the individual.



All components of saving cannot be measured with precision in New England. But such statistical data as are available indicate considerable correlation between regional and national trends.

Time deposit balances at New England commercial banks have receded about 4.5 per cent from their late 1947 peak, although in recent months the decline appears to have slackened. Deposit balances at New England mutual savings banks are currently growing at an annual rate of slightly over one per cent, despite some monthly declines. Postal savings deposit balances have dropped since 1947. New England holdings of United States savings bonds at current redemption values are picking up again after being at a practical standstill for many months. Private capital in New England savings and loan associations and cooperative banks, and New Englanders' equities in life insurance are estimated to be growing at annual rates of about 11 and 7 per cent, respectively.

New England's accumulated savings in the forms just enumerated amounted to over $16 billion at the end of 1948, and increased by about $600 million during that year. If one attempts to add new investments in residential construction, noncorporate business and farm enterprises, and state, municipal, and corporate securities — after due allowance for depreciation and offsetting indebtedness — it is reasonable to expect New England's total annual personal saving to be well over $1 billion, and it may approach $1.5 billion.

Per capita accumulations of these types of measurable savings on December 31, 1948, were about $1,750 for New England and about $1,150 for the United States. However, practically all these types of savings are growing more slowly in New England than in the country at large. Wisely invested savings furnish the added capital necessary for the expansion of welfare in any society. New England's relatively high income is due in large part to its large property income, its reward for earlier saving. If New England's relative advantage in income is to be preserved, it is not only essential that its savings position be maintained but also that means be devised to tap institutional repositories of savings for the purpose of increasing and improving New England's productive capacity.

September Gains Hold in October

A CHECK of New England statistics reveals that a broad upswing in the regional economy occurred during the August-September period. Considerable hesitancy developed in early October, but it appears that manufacturing activity kept most of its recent gains. The full effects of work stoppages in coal and steel were delayed, and currency devaluation had little, if any, immediate effect on employment.

Total nonagricultural employment in New England this September increased by 42,000 from the August figure to reach 3,135,000, according to Bureau of Labor Statistics data. This employment total, however, was still 6.3 per cent below the year-ago level. The monthly gain of 2.4 per cent in manufacturing employment in September led the way back, although nonmanufacturing employment also improved by 0.6 per cent.

Employment in the manufacture of nondurable goods this year increased by 18,000 between August and September. Total employment benefited fully from this rise, since employment in the durables also improved. In September, the number of workers in the New England machinery industry rose for the first time during 1949. An improved demand for household appliances gave support to employment and working hours in the electrical equipment industry.

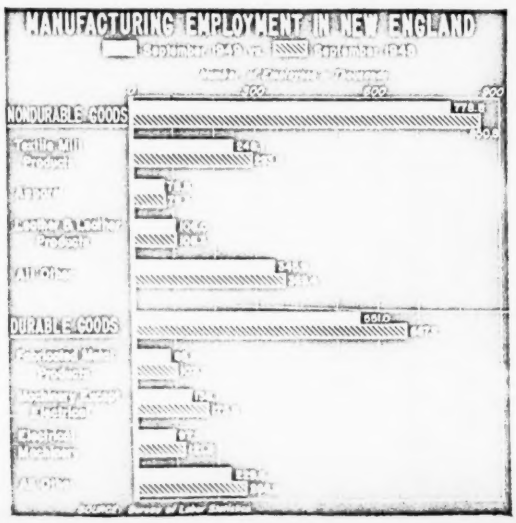
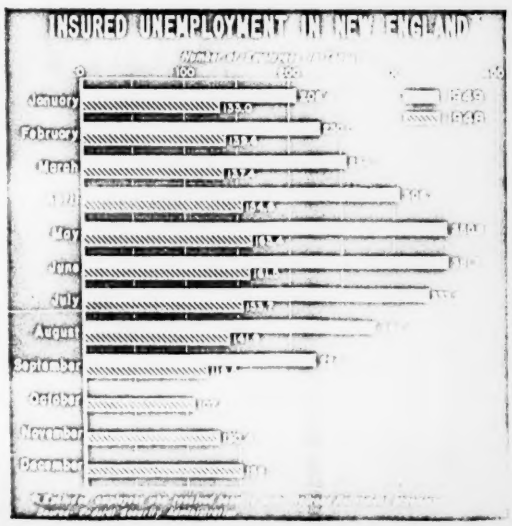
Apparel and textiles made the outstanding gains in nondurables in September, achieving employment increases of 20.9 per cent and 6.7 per cent respectively from the pre-upturn July level. Improvement in textiles spread out in September and included cotton goods and dyeing and finishing. The paper and rubber products sections of nondurable-goods industry expanded their labor forces considerably in September. Employment in the jewelry industry continued to improve at an increasing rate. Furthermore, rising employment in New England reflected only part of the upturn in industrial activity; average weekly hours of work also increased.

Total insured unemployment in New England this September dropped to the lowest level since last January. October reports indicated a further decline.

The value of total construction contracts awarded in New England this September very nearly broke the record for recent years. According to the F. W. Dodge Corporation, the September figure was $84,915,000, a monthly increase of 48.2 per cent and a gain of 89.3 per cent over the figure for last September.

Manufacturers in Massachusetts found that orders had apparently reached rock bottom in July and reported a rise of 44 per cent by September, according to the Associated Industries of Massachusetts. Textiles, leather and shoes, metal trades, and paper shared in the upturn in orders, but textiles, with an improved position of 96 per cent over orders in July and 117 per cent over orders a year ago, had the greatest gain.

Changes in manufacturing inventories reflected the upturn in orders during the August-September period. The September report of the New England Purchasing Agents' Association disclosed that as business picked up the volume of finished goods available declined and productive inventories continued their upward trend. Forward buying policy continued to be cautious.

In October the purchasing agents reported that the rate of business improvement had slowed down. However, earlier good business and preparations for material shortages maintained productive inventories at their higher level.

Significant declines in wholesale prices this October occurred in zinc, lead, tin, eggs, hogs, corn, and cottonseed oil; prices of coffee and cocoa soared. The Combined Index of Consumers' Prices in Massachusetts in October declined 1.5 per cent from the level in September and 2.6 per cent from that in October 1948.